

CLAIMS

1. (Currently Amended) A contactless power supply for inductively providing power to a remote device comprising:

a resonant circuit having at least one of a variable capacitor with a variable capacitance and a variable inductor with a variable inductance, said resonant circuit having a variable resonant frequency that varies as a function of said at least one of said variable capacitor and said variable inductor, said resonant circuit having a primary for transferring power to the remote device;

a receiver for receiving information from the remote device;

a switching circuit electrically coupled to said resonant circuit, said switching circuit operating at a variable operating frequency;

a circuit sensor operatively coupled to said resonant circuit, said circuit sensor generating a sensor output; and

a controller electrically coupled to said circuit sensor and said receiver, wherein said controller is programmed to:

(1) vary the variable resonant frequency of the resonant circuit in response to information received from the remote device by at least one of (i) varying said capacitance of said variable capacitor of said resonant circuit; and (ii) varying said variable inductance of said variable inductor of said resonant circuit ; and

(2) vary the variable operating frequency of said switching circuit in response to said sensor output.

2. through 3. (Cancelled)

4. (Previously Presented) The contactless power supply of claim 1 where the controller varies the variable resonant frequency in response to power information from the remote device.

5. (Currently Amended) A contactless power supply for providing power to a remote device, the contactless power supply comprising:

an inverter, the inverter having an ~~adjustable~~ duty cycle and an ~~adjustable~~ operating frequency;

a resonant circuit coupled to the inverter, the resonant circuit having a resonant frequency, the resonant circuit having a primary for transferring power to the remote device;

a power source coupled to the inverter, the power source having an ~~adjustable~~ rail voltage;

a receiver for receiving power information from the remote device;

a sensor operatively coupled to said resonant circuit, said sensor generating a sensor output; and

a controller in electrical communication with said receiver and said sensor, said controller programmed to:

(1) vary at least one of the ~~adjustable~~ operating frequency of the inverter, the ~~adjustable~~ rail voltage of the power source, and the ~~adjustable~~ duty cycle of the inverter, in response to said sensor output, periodically during use; and

(2) vary the ~~adjustable~~ resonant frequency of the resonant circuit in response to information received from the remote device.

6. (Original) The contactless power supply of claim 5 where the receiver is part of a transceiver.

7. (Cancelled)

8. (Previously Presented) The contactless power supply of claim 5 further comprising a memory.
9. (Previously Presented) The contactless power supply of claim 6 where the transceiver communicates with a plurality of remote devices.
10. (Original) The contactless power supply of claim 9 where the transceiver receives power information from each of the remote devices.
11. (Original) The contactless power supply of claim 10 where the transceiver creates a list in the memory of the power information.
12. (Previously Presented) The contactless power supply of claim 11 where the controller determines an optimal setting for at least one of rail voltage, resonant frequency and duty cycle based upon the list.
13. (Original) The contactless power supply of claim 12 further comprising a communication interface for communicating with a workstation.
14. (Original) The contactless power supply of claim 13 where the controller creates a communication link between the workstation and the remote device by way of the transceiver.
15. through 55. (Cancelled)
56. (Currently Amended) A method of operating an inductive power supply for a remote device, the method comprising:

inductively coupling the inductive power supply to the remote device;

receiving, in the inductive power supply, power information from the remote device;

sensing, in the inductive power supply, a characteristic of power in the inductive power supply, the sensed characteristic of power being affected by a characteristic of the remote device reflected through the inductive coupling ~~by at least one of;~~

(1) adjusting ~~an adjustable~~ resonant frequency of a tank circuit in the inductive power supply in response to the information received from the remote device by at least one of (i) adjusting a capacitance of a variable capacitor of the resonant circuit; and (ii) adjusting ~~varying an variable~~ inductance of a variable inductor of said resonant circuit; and

adjusting at least one of an ~~adjustable~~ operating frequency of the inductive power supply, a duty cycle of the inductive power supply, and ~~an adjustable~~ rail voltage of the inductive power supply, as a function of the sensed characteristic in the inductive power supply.

57. (Previously Presented) The contactless power supply of claim 1 wherein said receiver comprises at least one of the primary, an RF transceiver, an RF receiver, a communication coil separate from said primary, and a communication coil that is part of the primary.

58. (Previously Presented) The method of claim 56 wherein said receiver comprises at least one of the primary, an RF transceiver, an RF receiver, a communication coil separate from said primary, and a communication coil that is part of the primary.

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